ICOM-CC ICOM international council of museums – committee for conservation

MURALS, STONE, AND ROCK ART WORKING GROUP NEWSLETTER

November 2025, No. 4

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Coordination Team for 2023-2026
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Cueva de las Manos, Argentina. *Image: © Valerie Magar*

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EDITORIAL

Welcome to volume 4 of the Murals, Stone, and Rock Art newsletter. Welcome to all new members of our Working Group. It is a busy season as we are in the early stages of preparing for the next Triennial Conference in Oslo, September 14-18, 2026, reviewing papers and poster abstracts. This year saw a record number of paper abstracts submitted across specialty groups, and our Working Group had a strong set of abstracts accepted, and we are looking forward to a full and varied program across the specialty areas of murals, stone, and rock art. We are hoping to have a full set of posters as well. This will make for a robust program for our Working Group.

The Conference website is online here https://icom-cc2026.org/ and a preliminary program will be posted soon. We encourage you to also look at the program of pre- and post-conference site visits that will be going to sites of interest to our Working Group. It promises to be an excellent conference all around!

In the meantime, we organized a very productive and informative online bi-annual meeting on the impact of climate change on murals, stone and rock art heritage. More on that in the article inside.

You will also find recent thesis abstracts; congratulations to all who have finished up their programs!

We hope you find this issue of the newsletter interesting and that you will consider contributing to a future issue. And we hope you are planning to attend the next Triennial Conference in Oslo next September!

NEWS FROM THE FIELD

News from the field welcomes submissions from our Working Group members to provide updates on activities and events (see below for instructions to submit for this section).

7th Historic Mortars Conference (HMC 2025), Padova, 2–4 September 2025: What's new?

Chiara Pasian (University of Gothenburg)

The Historic Mortars Conference only happens once every three years — but it's definitely worth the wait. Each edition brings together conservators, heritage and conservation scientists, archaeologists, and other heritage professionals to share the latest research on historic mortars, their characterization and conservation, new products, and testing methods.
This edition was particularly rich in themes and case studies presented, and featured research from all around the world.

Every day started with an inspiring **keynote lecture**, from the history and use of ancient binders such as lime (Artioli, *Ancient binders: their role and history*) to a critical review - and new insights - into the use of pozzolans by Romans (Marie D. Jackson, *Reactive aggregates in the mortars of ancient Roman concretes: Clues to chemical and mechanical resilience*) to the use of organic additives in historic mortars (Rodriguez-Navarro, *Learning from the past to build the future: Ancient lime-based mortars inspire new formulations for built heritage conservation and sustainable construction*). The keynote lectures examined not only original technologies and mortar characterization but also repair materials and their chemical and physical-mechanical compatibility with historic structures (Papayianni, *Why use Lime-based Mortars for repairing monumental structures?*).

As in previous editions, a consistent number of papers focused on **archaeometry and mortars characterization**, with the presentation of many case studies. Artificial Intelligence, a burning topic more and more present in many aspects of conservation, also featured in HMC 2025, this time applied to archaeometric analyses of mortars (Miriello, *AI-Driven Acceleration of Archaeometric Analysis in Ancient Mortars: Efficient Data Interpretation from Image Analysis*). The research aims to improve and simplify some image analysis processes, such as routine petrographic analyses of thin sections, study of aggregates, and data interpretation.
Another study remarkably uses new and combined methods for detecting organic additives in historic mortars (Atiénzar et al., *Ultrastructural and compositional analysis of ancient Roman mortars and their novel biomimetic counterparts*). The research, from Maya to Roman plasters, proves the use of such additives as part of the original technology in different geographical areas and times. This may have important implications not just for technological studies, but also for the development of *ad hoc* lime-based repair materials.

Technological studies included case studies related to mural paintings, both lime-based (Baragona et al., *Applied multienergy CT for the analysis of Roman wall painting plaster fragments;* Gorodetska & Porter*, Plaster application marks and their function in the 16th century Great Siege wall painting cycle, Valletta, Malta*) and gypsum-earth based (poster by Sagaradze et al., *Exploring Gaji: Gypsum-earth plasters in medieval wall painting technology at Kolagiri, Dodorka, and Sabereebi Monasteries, David Gareji, Georgia*). Also plaster reliefs featured, from the Czech Republic and northern Italy-southern Switzerland region (Válek et al., *Understanding of materials and techniques of Baroque stuccoes and their repair*) to Rome (Cavallo et al., *Preliminary study of the gilded stucco decorations in the St Peter Basilica in Rome*).

Deterioration issues regarding murals included a contribution on copper-based pigments and their alteration in the fresco technique (Jiménez-Desmond et al, *The dark fate of copper-based pigments in fresco painting: preliminary results*). In the study, copper-carbonates and copper-silicates are applied on lime plaster both with an organic binder (egg yolk) and *a fresco*, and are studied with a range of analytical techniques.

Some studies on **repair materials** showed a direct link to conservation practice, such as Midtgaard and Bartholdy (*Time to re-evaluate the long-standing use of 1:3 lime mortar for repairs in historic mortar?*), where the authors assess the use of aggregate-rich mortars (1:3) as repairs for lime-rich medieval Danish plasters (1:2 hot-mixed mortar). Although the 1:3 mortar is weaker than the original, differences in microstructure and hygric properties may trigger detrimental moisture dynamics in the system, potentially exacerbating deterioration in the original plaster.
Another study focused on the development of a repair plaster and an injection grout for gypsum-based 17th c. mural paintings (Debono et al., *Field evaluation of the properties of injectable grout*

and repair plaster for the stabilization of 17th c. painted gypsum-wood coved suspended ceiling), with field testing performed before implementation.

Field **testing** finds more and more space within conservation projects, and a review on field testing for grouts was presented at the Special Session *State of the Art Report of the RILEM Technical Committee 277-LHS: Specifications for testing and evaluation of Lime-based repair materials for Historic Structures*, with Biçer-Simşir et al. (*Architectural surface conservation: Field testing techniques for lime-based injection grouting*). The session, which focused entirely on grouts, included a review of testing of grouts in the fresh and hardened state (Pachta et al*., Testing and requirements of the fresh and hardened state properties of lime-based grouts for the consolidation of architectural surfaces*) and a review of adhesion testing (Pasian et al*., Adhesion: a paramount property for injection grouts. Review of standards and new testing methods*).

Highlights of the conference included new **consolidation** materials and methods.
Two different research groups presented novel materials for the consolidation of gypsum-based mortars (Tigrano & Ziegenbalg, *Consolidation of gypsum-containing substrates with newly developed nano-gypsum dispersions*, and Burgos-Ruiz et al., *Fluorescent Nano-Bassanite for the Consolidation of Gypsum Plasters*). Tigrano & Ziegenbalg developed nano-gypsum dispersions consisting of calcium sulphate particles (100 nm to 4 μm) dispersed in an ethanol/water mixture and tested them on gypsum- and lime/gypsum-based mortars of different porosity. Particles in the dispersion include hemihydrate ($CaSO_4 \cdot ½H_2O$) and dihydrate ($CaSO_4 \cdot 2H_2O$) phases. The product shows penetration up to 18 mm and provides samples with a higher mechanical stability.

On the other hand, Burgos-Ruiz et al. synthesized stable fluorescent nano-structured bassanite (hemihydrate, $CaSO_4 \cdot ½H_2O$), applied as an ethanolic dispersion. The research group investigated the occlusion of calcein (the fluorescent dye) during the gypsum crystallization with various analytical techniques: gypsum formed upon the hydration of the modified nano-bassanite shows greater resistance to dissolution when calcein is present; on the other hand, fluorescence is useful in treatment assessment, allowing the identification of both treated areas and penetration depth.

Tigrano & Ziegenbalg also presented a novel barium-phosphate treatment for the consolidation of lime-based plasters contaminated with soluble salts (*Barium-Phosphate Treatment for Salt-Contaminated Heritage Materials: Enhancing Durability and Sustainability in Restoration*). Barium-phosphate, applied on mock-ups contaminated with magnesium sulfate, performs the dual functions of sulfate fixation and material consolidation, without byproducts.
In the last few years, diammonium hydrogen phosphate (DAP) has been researched for the consolidation of various types of stone, lime-, and cement-based plasters. Sincia Aloysino &

Sassoni discussed the use of DAP in the consolidation of mural paintings, with its application on fragments of historic lime-based murals (*Consolidation of wall paintings by diammonium hydrogen phosphate (DAP)*). Some samples show a color change, and therefore, this will require further investigation. Overall, the treatment determines better cohesion and a higher resistance of the samples to freeze-thaw cycles.

The book of extended abstracts, including both oral and poster presentations from the conference, can be **downloaded** at https://hmc2025.com/book-of-extended-abstracts/

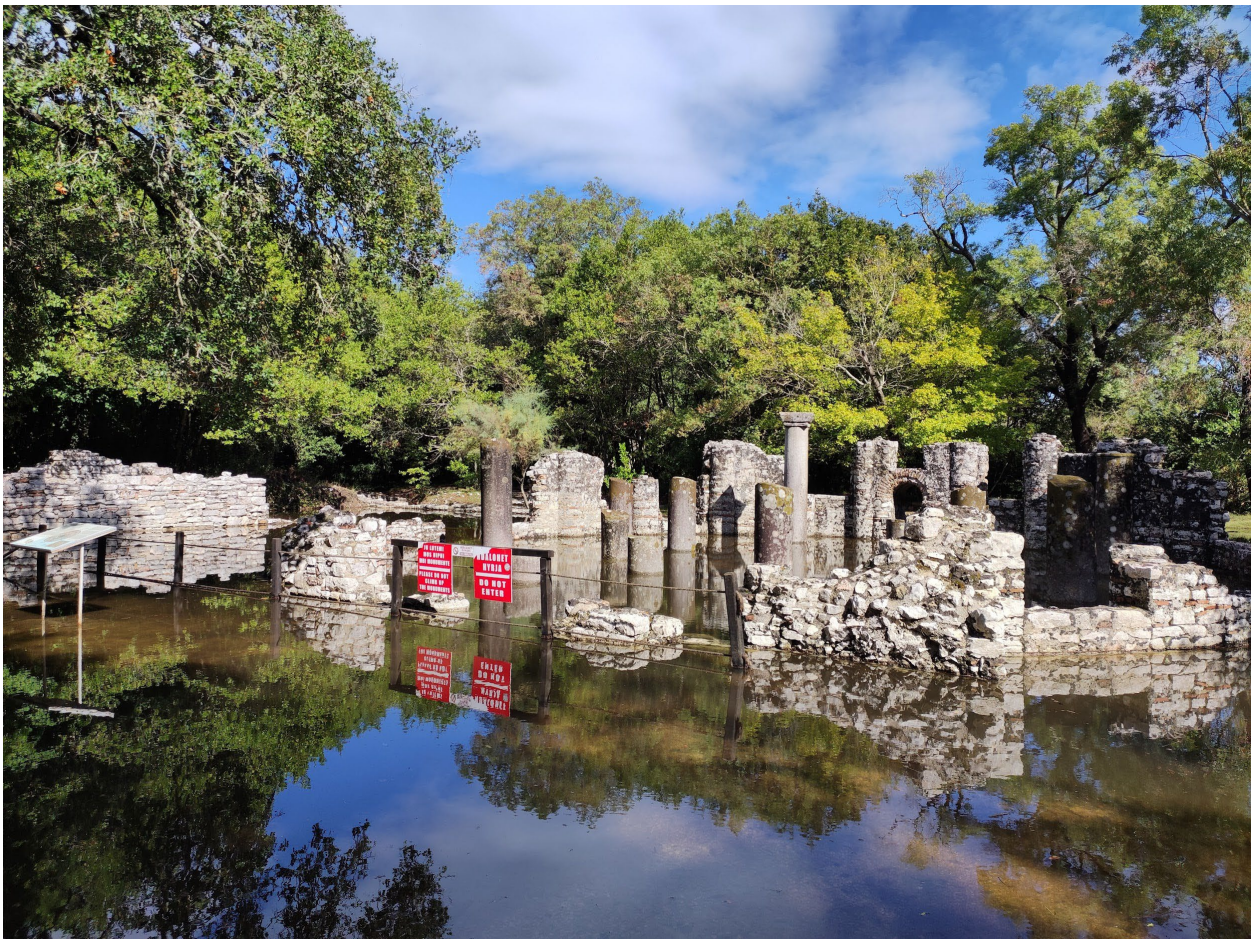
Selected works will be invited to submit a paper to the *Journal of Cultural Heritage* or *Materials and Structures*.
We look forward to reading more!

Notes from the October 2025 Online Meeting on the Impacts of Climate Change on Murals, Stone, and Rock Art

By Leslie Rainer (Getty Conservation Institute)

The October bi-annual online meeting focused on the Impacts of Climate Change on Murals, Stone, and Rock Art, a Working Group theme for this triennium. The online meeting was attended by 35 colleagues from around the world. This open meeting was intended to be an informal exchange of information among all participants. Five brief presentations addressed issues related to mosaics, rock art and stone, and were followed by discussion among meeting participants.

Evjeni Mato, conservation manager from the Butrint Management Foundation, started off the meeting with a presentation on the impacts of climate change on the archaeological site of Butrint, Albania, which is included on the World Heritage List and is also recognized as a National Park for its natural values. Her study was focused on the specific conservation issues at the site related to sea level rise, with some areas of the site with mosaic pavements being flooded permanently, and others experiencing periodic flooding (see image below). Related to this is the issue of salts from the Ionian sea, which is adjacent to the site. Butrint has also experienced drought and heat waves in recent times. Actions that the site managers are considering to mitigate damage being caused by climate change, include continuous monitoring, reuse of ancient drainage systems and new drainage systems as hydrology plays a key role at this site. Additionally, lightweight shelter structures are being considered. Sustainability is of primary concern to respect the natural and cultural values of this complex site, which are intimately connected through hydrology of the site.



The Baptistry of Butrint (Albania), whose mosaic floor is kept covered for conservation purposes. The monument appears flooded as a result of heavy rainfall.
(Photograph: © *Evjeni Mato*, October, 2021)

Abdullahi Abdulkadir, Senior Conservator at the National Commission for Museums and Monuments, Nigeria and one of the Assistant Coordinators of ICOM-CC Murals, Stone, and Rock Art Working Group showed damage to the rock art due to scaling of the rock related to higher temperatures being experienced at the site of Birnin Kudu, Nigeria where temperatures that fluctuated between 30-35°C have now risen to 43°C. Additionally, there has been an increase of rainfall at the site. The scaling of the rock has damaged paintings on the rock, and images have been lost.

Andrew Thorn, conservator working with rock art from Australia, presented thoughts on different sites where he has worked. One example presented long-term climate change to the site of Murujuga, once an arid landscape, which, due to long-term climate change, is now situated on a coastline. In this example, he made the point that it was in fact human intervention that is most impacting the site with mining, construction, and development. Another example addressed trees as in proximity of rock art sites and the need to consider their effects from multiple

perspectives including shading, water dispersal, water uptake, and modification of microenvironments. The examples shown made clear that a good understanding of causes and mechanisms of deterioration for each site is necessary to judge the relative merits of different vegetation options. He also discussed the issue of salts, pointing out that some salts are damaging and that others may be stable in the prevailing environmental conditions. His overall point was that humans look at sea level rise through our own memory, but climate has changed many times over the ages in a global context and over geological time, including earlier ice ages, glacial melting and sea level rise, which is relevant for some of the world's oldest rock art.

Two final presentations addressed related aspects of conservation, not directly focussed on climate change.

Jason Neelis, professor at Wilfred Laurier University in Canada, then presented a project he is working on with Lahore University on rock art and inscriptions in the Upper Indus Valley, Pakistan (https://gandhara.net/upper-indus/). Since 2017 he has been directing projects to develop methods for digital preservation of the visual and written cultural heritage of petroglyphs and inscriptions along the upper Indus River and tributary valleys in northern Pakistan that will be submerged in the flood basin of Diamer-Basha Dam with completion anticipated in 2030-2031. In addition to the dam, road-building, unregulated gold-mining, and other human threats are damaging and destroying many sites with rich concentrations of historically significant inscriptions and drawings. Over 35,000 drawings and inscriptions on about 6,000 rocks belonging to 60 sites will be lost. He described how the project team at Lahore University of Management Sciences (LUMS) has been using advanced digital imaging methods (TLS, photogrammetry, panoramic 2D virtual tours) for an ongoing digital survey, and has so far posted over 4,000 3D photogrammetry models from over half of the sites (34) to Sketchfab. Other tools they have developed for mapping include IIF image annotation and visualization of processed results that can be used for research and conservation. There will be an initial release of the project website that demonstrates a pilot for the site of Gichi Nala.

The final presentation, by Judy Jacob, architectural conservator, retired from the United States National Park Service, presented on the effects of biofilms and lichens on stones, focusing on monuments and gravestones. In her study she has seen that while lichens and biofilms may obscure the surface of the stone, in some cases they may also be seen as a protection, and that lichens remain on the surface, and in some cases hold deteriorating marble grains in place. Overcleaning, in her experience, can be damaging, not only because it removes loose bits of stone with abrasion, but it also encourages faster regrowth of biofilms and lichens. This presentation was prepared for the annual 2025 Association for Preservation Technology International conference where it was presented in more detail.

Discussion following the presentations touched on differentiating between effects of climate change and other causes of deterioration, how to identify and measure impacts of climate change, and understanding how to determine specific impacts within the larger context of climate change in the broad sense.

Many in the group felt that continuous monitoring of environmental conditions as related to specific conservation issues was important. Valerie Magar, conservator, ICCROM, gave the example of a rock art site in Baja, California, which has been monitored over two decades. There they have seen the temperature rise and a slight increase in moisture in an arid environment. This combination of rising temperature and humidity has led to the formation of a silicate skin on rock art panels, which has not been present on the rock at this site in the past. This monitoring is one example of a model to be followed to develop a rigorous study of deterioration and correlate causes.

Documentation was seen as another important aspect of conservation always, and specifically when working on heritage that risks being lost due to climate change or human activities such as development.

Maintenance was also recognized as an important aspect of conservation in places where climate change is bringing more intense weather. A lack of maintenance can make buildings and sites more vulnerable to severe weather if debris has collected on or around the structure, or if the building is in disrepair. Also, the introduction of modern materials to buildings typically using traditional materials, can result in issues of incompatibility, which can in turn lead to more serious deterioration.

In the case of flooding, the importance of reviewing existing and new drainage systems was noted. Other measures such as removing mosaics or rock art from their site was discussed, and this should be a last resort after all other avenues for documentation and conservation have been exhausted.

The importance of finding sustainable, low impact solutions for all conservation measures was addressed. This could be in the form of low-impact site shelters, planting of trees, and regular monitoring and maintenance.

There was a feeling that this was just the beginning of a conversation about the impacts of both climate change and human activity on murals, stone and rock art, and we hope that this conversation continues.

ESSAYS AND PROJECTS

Our section on Essays and Projects offers space for our Working Group members to share reflections from the field, as well as more in-depth information on ongoing or recent projects with colleagues (see below for specific instructions for submissions).

Rock art sites of Gwaram and Birnin Kudu, Jigawa State, Nigeria: loss of Atiye/Zango rock painting

Abdullahi Abdulkadir, Senior Conservator, Birnin Kudu Rock Art Interpretation Centre

African Rock Art is amongst the world's oldest surviving art, some of which predates writing by tens of thousands of years. Africa has the greatest variety and some of the oldest rock art on earth. There are at least 30 countries in Africa with an estimated total of 10 to 20 million images including major concentrations in the Sahara and southern Africa. There is an increasing recognition of the painted and engraved rock art sites to be found in Nigeria.[1]

In Northwestern Nigeria, Birnin Kudu and Gwaram Local Government Areas in Jigawa States are rich in historical rock art and heritage sites and this article describes some of the rock painting sites across these two Local Government Areas. Bauchi state, situated to the Northwest of Jigawa State, is home to rock painting sites that were documented by British Colonials. Cross River state, in the South East of Nigeria, is best known for monoliths found there. While Gwaram and Jigawa States are rich in rock art sites, they face ongoing threats. This article seeks to highlight the recent destruction of rock art at Atiye/Zango and to place this lost site in the context of other sites in Birnin Kudu and Gwaram.

Rock art is very important because it is one of few means left to tell us how our ancestors thought and how they saw and portrayed their world. As most of the rock art belonged to cultures that disappeared long ago, it is difficult to understand why the artists painted and engraved or what their art meant to them. Many researchers believe that some rock art was implicated in religious or spiritual activity, expressing the artist's conceptions of reality and their position in the world around them. Therefore, African rock art can be looked at in the context of some interpretive themes, including symbolism, shamanism, and assumed relations between people and certain animal species.

[1] See https://africanrockart.britishmuseum.org/country/nigeria/ .

Birnin Kudu Rock Art

Birnin Kudu is one of the twenty seven (27) Local Government Areas (LGAs) in Jigawa State, which is located in Northwest Nigeria. It is rich in historical heritage including the Birnin Kudu rock painting as well as the former independent states of Hadejia, Gumel, and Kazaure.

The prehistoric people of Birnin Kudu depicted images of cattle, sheep, and geometric symbols across the different sites.

Various other ethnographical information gathered from researchers indicated profound historical connection of the community, native peoples, and the trans-Sahara trade routes across the state as communicated through different rock images. Ultimately Birnin Kudu rock painting allows us to construct and reconstruct the historical background of the earlier inhabitants of the place. It also helps students, researchers, and historians understand the prehistoric peoples' imagination, skills, fashion, herding and hunting ability.

Protection of this site became urgent, which led the National Commission for Museums and Monuments under the leadership of Mallam Yusuf Abdallah Usman, to create the Birnin Kudu Rock Art Interpretation Centre and charged them to protect and conserve the irreplaceable treasures of art against all forms of threat from vandalism and destruction. The centre has been able to provide protection to a wide distribution of rock painting sites, rock shelters, and rock gong-containing caves.[2]

Rock art and rock painting sites within Birnin Kudu, Nigeria

1. Dutsen Mesa
2. Dutsen Habude
3. Dutsen Murufu
4. Atiye/Zango

Dutsen Mesa lies at the west side of the Local Government Area and was declared a National Monument in 1956. It contains different styles of domestic cattle, but two main types are pictured: a long-bodied, long-legged, humpless breed with long spreading or converging, sometimes lyre–shaped horns and a short humpless breed. Tentatively, they have been identified as long–horned cattle, which is a breed now extinct in Nigeria.

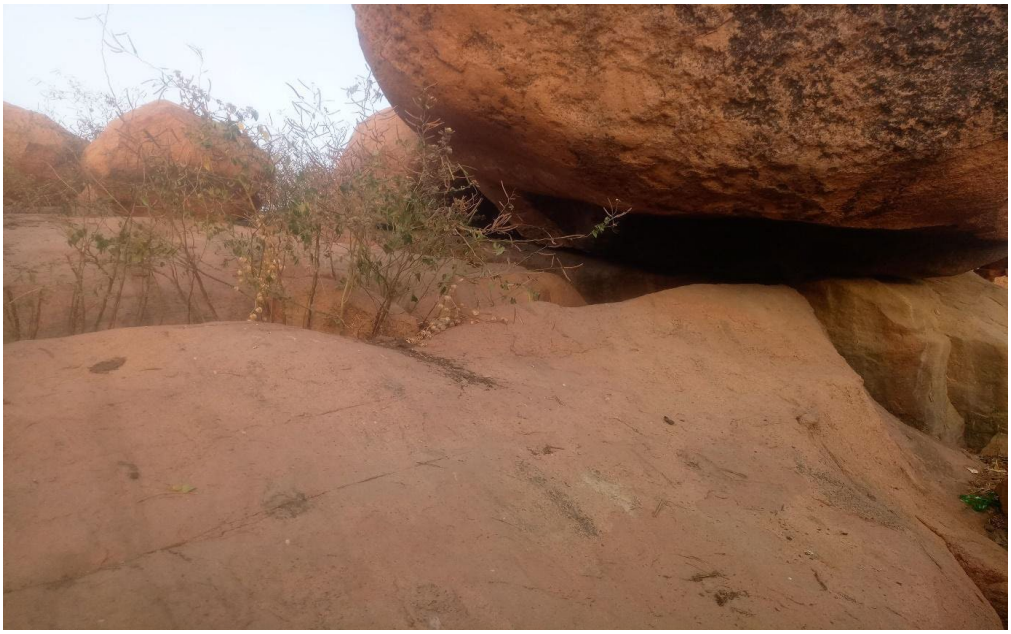
Dutsen Murufu is situated at the center of the town across the road leading to Bauchi State by the west, the wall fence site contains images of short horned bull together with other fainter painting. It was declared a National Monument in 1964. It is called Dutsen Murufu simply because

[2] A rock gong is a rock that, when struck, produces a ringing tone. These were used in the past to communicate messages of danger, rain or festivities of the earlier inhabitants and different communities of the past (Fagg, 1956; Goodwin, 1957)

a large rock cover occurred naturally on the top of the cave covering rock painting images.

Dutsen Habude is located south of the Murufu site covering a large area of the Birnin Kudu rock painting sites.[3]

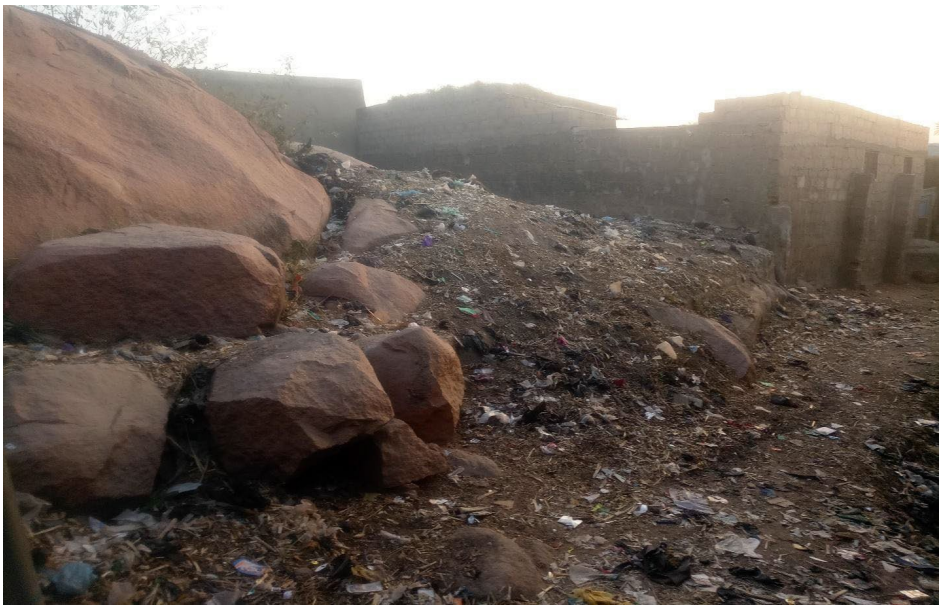
Atiye/Zango is located at the east side of Birnin Kudu. The site is secured with fencing but is surrounded by settlements of Birnin Kudu peoples or community. In 2019–20 the site started to be used for the dumping and burning of refuse. This has had severe, negative effects on the site including blocking access to areas of rock art and the deposition of soot and partially combusted material on the surface of the rock art.



Atiye rock painting site
(Photograph: *Abdullahi Abdulkadir*, 2025)

This undesirable turn of events could only occur through negligence of the guardians of the site and disregard of elements of the local community. A detailed analysis of the events and causes leading to this loss may help to prevent loss of other sites similarly at risk from incursion.

[3] Further images of these sites can be seen at https://www.bradshawfoundation.com/africa/nigeria/birnin_kudu/index.php .



Encroached entrance and use of site as refuse dumping ground
*(*Photograph: *Abdullahi Abdulkadir*, 2025)

Gwaram Rock Art

List of the currently identified rock painting sites within Gwaram Local Government Area and their art distribution

1. Yawazo
2. Nasawara
3. Galambi

Yawozo cave: Located in a very remote area 100 kilometers from Birnin Kudu town. Access to the site by motor vehicle is not easy because of the mountainous terrain of the area. Here, there lies a circular shelter on top of the rock. Painted images are depicted inside and around the cave. The images portray handprints, geometry, and cattle of different sizes. Information from local inhabitants indicated that the area was a trans-Saharan trade route used in the past to convey goods across the country.


Yawazo cave at Gwaram Local Government Area
(Photographs*: Abdullahi Abdulkadir*, 2018)

Nassarawara**:** Painted images are depicted inside this cave, located ca. 78 km away from Birnin Kudu main town. The site is in the process of being listed as a national monument.

Galambi**:** Located approximately 80 km from Birnin Kudu main town, this site is also thought to lie on a trans-Saharan trade route. The site is in the process of being declared a national monument.

Conclusion

The rock art sites described above each face a variety of threats. However, in the case of Atiye/Zango, threats from encroachment of local settlements have resulted in catastrophic damage to this important site. This loss occurred during a period in which the Rock Art Interpretation Centre and National Headquarters were unable to carry out physical visitations and monitor conditions of the sites. As a result of the financial crisis the country is facing, the commission budget is insufficient to take adequate care of the many rock art sites of the region.

References

Fagg, B.. The discovery of multiple rock gongs in Nigeria. *African Music: Journal of the International Library of African Music* **1.3** (1956): 6–9.
Goodwin, A. J. H. "Rock gongs, chutes, paintings and fertility." The South African Archaeological Bulletin **12.45** (1957): 37–40.

RECENTLY COMPLETED THESES

We are keen to share abstracts of recently completed theses on topics relevant to conservation of murals, stone, and rock art up to 150 words.

Consolidation of Earthen Plasters at AlUla Old Town: Developing a Methodology for Materials Characterisation and Treatment Assessment.

Ilaria Alessi - ilaria.alessi@outlook.com

Master of Arts in Conservation of Wall Paintings, Courtauld Institute of Art, London (UK), 2025.

Dissertation supervisor: Sibylla Tringham, Courtauld Institute of Art, London (UK)

External research supervisors: Francesca Piqué and Giovanni Cavallo, University of Applied Sciences and Arts of Southern Switzerland (SUPSI), Mendrisio (CH)

This dissertation proposes a methodology for characterising earthen plasters and evaluating consolidation treatments, developed through research at AlUla Old Town in Saudi Arabia, a heritage site with culturally significant earthen architecture and vernacular wall paintings. Determining the original plaster composition was essential for designing an appropriate conservation strategy, which was achieved through mineralogical and petrographic analyses. Consolidation trials tested selected materials in the laboratory to assess their fundamental properties and performance under simulated site conditions, including hygrothermal cycling, rainwater erosion, and sandstorm abrasion. These analyses were complemented by field testing, which evaluated the practical working properties and effectiveness of treatments in real-world conditions. The findings underscore how environmental factors strongly influence the consolidants performance, highlighting the importance of combining laboratory testing with on-site evaluation. By offering a systematic, multi-analytical approach, this research supports the advancement of sustainable conservation strategies for earthen heritage, particularly in regions with comparable environmental conditions.

The Physical History of the Painted Rooms in Villa Imperiale, Pesaro (IT)

Josephine Emilia Morris

Master of Arts in Conservation of Wall Paintings, Courtauld Institute of Art, London (UK), 2025.

Dissertation supervisor: Dr Jane Spooner, Courtauld Institute of Art, London (UK)

This research examines the physical history of the wall paintings at Villa Imperiale (Pesaro, Italy) to guide future conservation planning. It was inspired by the 2023-2024 Courtauld / SUPSI collaborative fieldwork project at the Villa.

Villa Imperiale consists of two Renaissance buildings: the older Sforzesca wing (1452-1469) and the later residence (1523-1538). The Sforzesca wing contains eight frescoed rooms by Girolamo Genga, celebrating the military victories of Francesco Maria della Rovere, Duke of Pesaro.

Following Sharon Cather's definition of physical history as an object's timeline of fabrication, change, and intervention, this study combines archival research, oral history testimony, and visual inspection. By comparing what can be seen today with the historical record, and using stylistic and technical analysis, the research highlights undocumented conservation campaigns and earlier restoration techniques. This shows how past interventions have shaped the paintings' appearance and offers a sound basis for their future care.

A study of radiation-matter interactions for safe operative protocols on paintings in Heritage Science

Dr. Amelia Suzuki - mariaameliasuzuki@cnr.it

Doctor of Philosophy, Nottingham Trent University (Nottingham, UK) in collaboration with the Institute of Heritage Science of the Italian National Research Council (Florence, Italy), September 2024

Supervisor: Haida Liang (NTU), Cristiano Riminesi (ISPC-CNR), Costanza Miliani (ISPC-CNR), Sophie Benjamin (NTU).

Full-text link: https://irep.ntu.ac.uk/id/eprint/54101/

Laser- and X-ray-based techniques are inarguably advantageous for artworks analysis. But when using intense radiations, such as synchrotron X-rays, on radiation sensitive materials (e.g. pigments) the damage risk is higher, and it becomes paramount to assess the risks and apply strategies to avoid any detrimental effects. Research into understanding radiation damage mechanisms, identifying the critical parameters and developing monitoring methods to design mitigation strategies is still limited.

Thus, a new monitoring method based on time and spatially resolved VIS-NIR reflectance spectroscopy has been developed not just for damage identification a posteriori, but to enable the detection of early-warning signs of damage to prevent or minimize radiation damage promptly during measurements. The method is also useful to study radiation-matter interaction, even beyond damage, such as the laser irradiation of plattnerite to recover darkened red lead wall paintings, for which the mechanism has been thoroughly studied to better identify the pros and cons of this possible restoration treatment.

The problem of film-forming materials on detached paintings in Villa Imperiale: evaluation of reduction methods

Michela Tiziani

Master of Arts in Conservation and Restoration, University of Applied Sciences and Arts of Southern Switzerland (SUPSI), September 2025.

Supervisor: Francesca Piqué (SUPSI); Co-supervisors: Maria Rosa Lanfranchi (Opificio delle Pietre Dure), Chiara Alisi (ENEA), and Maria de los Dolores D'Alessio (SUPSI)

The presence of non-original protein-based film-forming material on the walls of the Sala della Calunnia causes lifting and detachment of the paint layer. This phenomenon is related to continuous thermo-hygrometric fluctuations, which act on the proteinaceous material. The issue is particularly critical on the west wall, which was detached using the strappo technique in the 1960s: the extremely thin and fragile paint layer was re-adhered to a new support with acrylic adhesive and is now lifting, pulled by the overlying protein-based material. This thesis aimed to develop a method to reduce the proteinaceous material, addressing one of the main causes of deterioration while safeguarding the original stratigraphy. Alongside traditional approaches, biocleaning was tested using microorganisms capable of selectively consuming the protein-based material through their protease activity. Tests using bacteria applied in a granular agar support showed high selectivity, better control of the procedure, and minimal mechanical action. The method proved more effective during warmer months.

RECENT PUBLICATIONS

This section gathers recent publications linked to conservation and management of mural paintings, stone, and rock art. We would also love to receive book reviews from our members!

Recent publications

Feiglsdorfer, H. and Blaikie, C., editors (2025). *Building Craft Traditions in Tibetan and Himalayan Architecture*. Verlag der Österreichischen Akademie der Wissenschaften, Wien. Available online: https://doi.org/10.1553/978OEAW95382

Joffroy, T., Hubert, A., and Guéguen Perrin, A.. "Terra Education IV: changing scale." Terra Education IV: changer d'échelle| changing scale| cambiar de escala. CRAterre éditions, 2025. Available online: https://craterre.hypotheses.org/6425

NEW APPOINTMENTS

We are happy to publicize new appointments in the Murals, Stone, and Rock Art community!

FUTURE CONTRIBUTIONS

If you would like to publish with our Newsletter or have ideas for the Newsletter please get in touch!
We welcome texts in English, French, Spanish or Italian.

Please send contributions to: joshua.hill@ntu.ac.uk

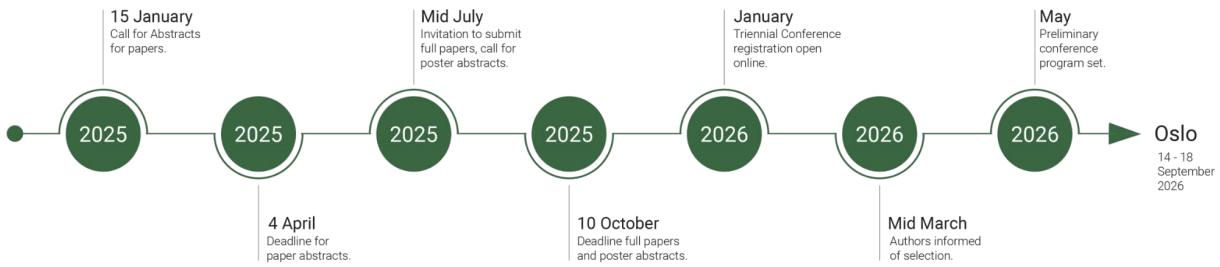
We plan to publish the Newsletter in May and in November of each year. Contributions for the newsletter should be sent by **1 April** for the May volume and by **1 October** for the November volume.

All submissions must be sent in Word format and may be accompanied by images (*.jpg or *.tiff format with a resolution of 300 dpi and a minimal size of 1.5MB). Use only images for which you have permission to use and publish. Add a caption for the images, including the credit for the image. All submissions are subject to review by the editors.

- **News from the field**: 300-500 words and maximum two images
- **Essays and projects**: 2000-3000 words, including references (APA format) and maximum five images
- **Recently submitted theses**: abstracts of up to 150 words as well as the name of student, Institution, and course
- **Book reviews**: 300-500 words
- **New appointments**: 200 words and a photograph

ICOM-CC Triennial Conference, Oslo, 2026

The Calls for Papers and Posters for the next ICOM-CC Triennial Conference, in Oslo in September 2026, have now passed. The theme for the 2026 Triennial Conference is **Cultural Connections in Conservation.** See the conference website for full details and the timeline below for contributions.



HOW TO JOIN ICOM-CC

In order to join ICOM-CC, you need to join ICOM itself. This is done through the ICOM National Committee in your country of work and residence. The cost of ICOM membership varies from country to country - enquire with your National Committee. Once an ICOM member, select ICOM-CC as your official International Committee via your National Committee.

Some of the benefits of joining ICOM and ICOM-CC are:

- The ICOM card which grants free or reduced rate entry to museums around the world.
- Reduced registration fees at ICOM-CC Triennial Congresses and Working Group Interim Meetings (where applicable).
- Priority consideration for paper/poster acceptance at the ICOM-CC Triennial Conferences.
- The possibility to join any Working Groups you like and receive regular updates, news and announcements.

For those of you who are already ICOM-CC members but without an ICOM-CC web account, you can request an online account at www.icom-cc.org and then choose Murals, Stone, and Rock Art as one of your Working Groups. If you already have an ICOM-CC web account, then go to the Murals, Stone, and Rock Art Working Group webpage and click on the "Join This Working Group" button. For anyone with an institutional ICOM membership please contact Joan Reifsnyder (secretariat@icom-cc.org) if you are interested in becoming a designated representative (there can be a maximum of three per institutional membership).

Please make sure to join the Murals, Stone, and Rock Art Working Group as the majority of communication will only go to members.

Join us on social media: